

Requirements for this paper:Multi-choice cards: ☐Non-programmable calculator: ☒Open book examination? ☐

NO

Graph paper: ☐Laptop: ☐**EXAMINATION/TEST:** TEST 3 (MEMO)**QUALIFICATION:** HonsBSc**MODULE CODE:** ITRI 613**DURATION:** 2 hours**MODULE DESCRIPTION:** Databases**MAX:** 50 Marks**EXAMINER(S):** Dr H. Mogale**DATE:** 04-06-21**TIME:** 18:00**TOTAL: 50****INSTRUCTIONS TO CANDIDATE**

Answer ALL questions

Make sure you have clear understanding of all the instructions and questions

Closed Book Examination

CANDIDATES ARE NOT ALLOWED TO READ QUESTIONS UNTIL THEY ARE TOLD TO DO SO BY THE CHIEF INVIGILATOR**TOTAL: 50 Marks**

1. Any subset of the fields of a relation can be the _____ for an index on the relation.

- A. key
- B. search key
- C. relation
- D. record

[3 marks]

2. Cost of retrieving data _____ through index varies greatly based on whether index is clustered or not!

- A. collections
- B. records
- C. indexing
- D. entry

[3 marks]

3. Using _____ we can merge more than 2 input buffers at a time however, this will affect the fanout.

- A. buffer
- B. DBMS
- C. three buffers
- D. merge sort

[3 marks]

4. _____ is designed to convert an unsorted sequence too large to fit into main memory into a series of "strands" of sorted sequences that can be stored in external memory.

- A. Quick sort
- B. Selection sort
- C. Merge Sort
- D. Replacement sort

[3 marks]

5. In _____ the number of I/Os is equal to the length of a path from the root to the leaf, plus the number of leaf pages with qualifying data entries

- A. hash based index
- B. tree based index
- C. empty index
- D. clustered index

[3 marks]

6. According to _____, If data records are very large, the number of pages containing data entries is high and this implies size of auxiliary information in the index is also large, typically.

- A. Alternative 2
- B. Hash indexes
- C. Alternative 1
- D. DBMS

[3 marks]

7. _____ stages pages from external storage to main memory buffer pool.

- A. Unclustered Index
- B. Buffer
- **C. Buffer manager**
- D. Double Buffer

[3 marks]

8. Multi-attribute search keys should be considered when a _____ clause contains several conditions.

- A. SELECTION
- **B. WHERE**
- C. PROJECTION
- D. Index

[3 marks]

9. In _____ Indexing leaf pages contain data entries and are chained.

- A. Clustered
- B. Hash Based
- C. Selection Based
- **D. Tree based**

[3 marks]

10. To build _____ first sort the Heap file with some free space on each page for future inserts.

- A. Index
- B. Unclustered index
- **C. Clustered index**
- D. Hash index

[3 marks]

11. In a relational DBMS every file contains either the _____ in the table or the entries in an index.

- A. records
- B. columns
- C. rows
- **D. None of the above**

[3 marks]

12. A _____ matches a CNF condition if there is a term in the form of attribute op value for each attribute in a prefix of the index's search key.

- A. relation
- **B. hash index**
- C. tree index
- D. none of the above

[3 marks]

13. Query _____ consist of an extended relation algebra tree with additional notations at each node indicating the access methods to use for each table and the implementation method to use for each relational operator.

- A. plan
- B. based index
- C. evaluation plan
- D. none of the above

[3 marks]

14. The primary goal of _____ is to find more efficient plans that compute the same answer.

- A. aim
- B. Index
- C. goal
- D. none of the above

[3 marks]

15. A _____ is evaluated by converting it to a tree of operators and evaluating the operators in the tree.

- A. tree
- B. tree-based index
- C. index
- D. none of the above

[3 marks]

16. The advantages of requesting data in sorted order it gathers _____ and allows for efficient searches.

- A. indexes
- B. duplicates
- C. records
- D. data

[3 marks]

17. Merge Sort is one of the most popular sorting algorithms that is based on the principle of _____ Algorithm.

- A. relational database
- B. data structures and
- C. Divide and Conquer
- D. none of the above

[2 marks]

[Total – 50 Marks]